

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Currently amended): A ball valve for handling very corrosive fluids and abrasive solid particles in a pressure leaching process, comprising:
 - a valve body;
 - a ball centrally positioned in the valve body and having a central passage rotatable in the valve body between open and closed positions;
 - at least one seat disposed between the ball and the valve body;
 - wherein the ball and seat each comprise a titanium substrate and a titania coating;

wherein the titania coating has a grain size of less than 500 nm.

13. (Original): The ball valve of claim 12 wherein the coating comprises a titania phase and a phase immiscible with the titania phase in a proportion effective to inhibit grain growth.
14. (Original): The ball valve of claim 13 wherein the immiscible phase comprises from 5 to 45 percent by volume of the coating.
15. (Original): The ball valve of claim 13 wherein the immiscible phase is selected from zirconia, tantalum oxide, boron carbide, silicon carbide, titanium carbide, diamond and combinations thereof.
16. (Original): The ball valve of claim 12 wherein the coating has a thickness from 100 to 500 microns.
17. (Cancelled)
18. (Original): The ball valve of claim 12 wherein the coating has a ground and polished surface.
19. (Original): The ball valve of claim 18 wherein the coating is deposited by thermal spray application of a powder comprising spherical agglomerates in a size range of from 10 to 45 microns comprising a mixture of ultrafine particles of less than 0.3 microns.
20. (Previously presented): A pressure acid leaching process comprising alternately opening and closing the ball valve of claim 12 to respectively allow and stop passage of an acid leach mixture comprising abrasive particles in a solution of sulfuric acid at a temperature above 250°C and pressure above 4000 kPa.
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)

25. (Currently amended): The invention of claim 12 wherein the ~~ultrafine particles are~~ titania coating comprises nanostructured ultrafine particles.
26. (Currently amended): The invention of claim 20 wherein the ~~ultrafine particles are~~ titania coating comprises nanostructured ultrafine particles.
27. (Cancelled)
28. (Previously presented): The ball valve of claim 12 wherein the coating has a grain size less than 300 nm.
29. (Previously presented): The ball valve of claim 12 wherein the coating has a grain size less than 100 nm.
30. (Previously presented): The ball valve of claim 28 wherein the coating comprises a titania phase and a phase immiscible with the titania phase in a proportion effective to inhibit grain growth.
31. (Previously presented): The ball valve of claim 30 wherein the immiscible phase comprises from 5 to 45 percent by volume of the coating.
32. (Previously presented): The ball valve of claim 30 wherein the immiscible phase is selected from zirconia, tantalum oxide, boron carbide, silicon carbide, titanium carbide, diamond and combinations thereof.
33. (Previously presented): The ball valve of claim 28 wherein the coating has a thickness from 100 to 500 microns.
34. (Previously presented): The ball valve of claim 28 wherein the coating has a ground and polished finish.
35. (Previously presented): The ball valve of claim 34 wherein the coating is deposited by thermal spray application of a powder comprising spherical agglomerates in a size range from 10 to 45 microns comprising a mixture of ultrafine particles of less than 300 nm.
36. (Previously presented): The process of claim 20, wherein the solution is at least 98 percent sulfuric acid.

37. (New): The ball valve of claim 12, wherein the coating has a uniform composition.
38. (New): The ball valve of claim 12, wherein the titania coating is bonded directly to the titanium substrate.
39. (New): The ball valve of claim 37, wherein the titania coating is bonded directly to the titanium substrate.
40. (New): The ball valve of claim 12, wherein the titania coating is bonded to a roughened surface of the titanium substrate.
41. (New): The ball valve of claim 37, wherein the titania coating is bonded to a roughened surface of the titanium substrate.
42. (New): The ball valve of claim 19, wherein the titania coating has a uniform composition and is bonded directly to a pre-roughened surface of the titanium substrate.
43. (New): The ball valve of claim 40 wherein the roughened surface is grit blasted to 2-3 mils (50-80 microns).
44. (New): The ball valve of claim 41 wherein the roughened surface is grit blasted to 2-3 mils (50-80 microns).